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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/565,369	01/23/2006	Taichi Ikedo	L9289.06103	2211
53989 7590 02/04/2009 Dickinson Wright PLLC James E. Ledbetter, Esq. International Square 1875 Eye Street, N.W., Suite 1200 Washington, DC 20006				
EXAMINER AGHDAM, FRESHTEH N				
ART UNIT 2611		PAPER NUMBER		
MAIL DATE 02/04/2009		DELIVERY MODE PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/565,369

Applicant(s)

IKEDO ET AL.

Examiner

FRESHTEH N. AGHDAM

Art Unit

2611

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5 and 7-11 is/are rejected.
- 7) ☒ Claim(s) 4 and 6 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1-2, 5, and 11 are rejected under 35 U.S.C. 102(a) as being anticipated by the instant's application's disclosed prior art.

As to claim 1, the instant application's disclosed prior art teaches an amplification apparatus that has a nonlinear high-frequency power amplifier that amplifies a first input signal; and a power supply voltage control section that forms a control signal for controlling a power supply voltage of said high-frequency amplifier based on a second input signal; and that amplifies a signal level of said first input signal by means of said high-frequency power amplifier to a level in accordance with said second input signal, wherein said power supply voltage control section comprises (fig. 1): an adder that adds together said second input signal and a negative feedback signal (fig. 6, means 131); an integrator that integrates output of said adder (means 133); a quantizer that quantizes output of said integrator in accordance with a predetermined threshold value (means 134); a low pass filter that eliminates quantization noise from output of said quantizer (means 135); and a compensator that has an inverse characteristic of said low pass filter or a characteristic approximating thereto and performs compensation of a feedback amount of said negative feedback signal (means 138).

As to claim 2, the instant application's disclosed prior art teaches said compensator is provided within a negative feedback loop from said low pass filter toward said adder (means 138), and performs compensation and feedback of part of output of said low pass filter.

As to claim 5, the instant application's disclosed prior art teaches said quantizer is configured as a polyphase quantizer having a plurality of quantizers (fig. 4).

As to claim 11, the instant application's disclosed art teaches the amplification apparatus is provided in a polar modulation transmitter (fig. 1); said first information signal is a phase modulation high-frequency signal in which a carrier frequency is modulated by a phase modulation signal of a baseband modulation signal (fig. 1, means 103); and said second input signal is an amplitude modulation signal of said baseband modulation signal (means 101).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the instant application's disclosed prior art.

As to claim 3, the instant application's disclosed prior art does not expressly teach said compensator is provided within a main loop from said adder toward said low

pass filter, and performs compensation of part of output of said adder. One of ordinary skill in the art would recognize that it is a design choice and/or obvious to either relocate the compensator as taught by the instant application's disclosed prior art and to place it in the main loop to compensate for the output of said adder or in addition to the compensator placed in the feedback loop one could place another compensator in the main loop to compensate for the output of the adder. Therefore, it would have been obvious to one of ordinary skill in the art to place the same compensator or another compensator in the main loop depending on the hardware complexity and the level of distortion compensation that is desired and/or required.

As to claim 8, the instant application's disclosed prior art teaches all the subject matter claimed in claim 1, except for an A/D converter that converts analog output of said low pass filter to a digital signal. One of ordinary skill in the art would recognize that it is a design choice and/or obvious to convert the analog output of the low pass filter to a digital signal since digital signal processing offers simplicity in signal processing and less susceptibility to noise. Therefore, it would have been obvious to one of ordinary skill in the art to convert analog output of said low pass filter to a digital signal for the reason stated above.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over the instant application's disclosed prior art, and further in view of Marrs et al (US 6,135,099).

As to claims 9 and 10, the instant application's disclosed prior art teaches all the subject matter claimed in claim 1, except for a variable attenuator in the negative feedback loop and said quantizer is configured as a variable-output quantizer, wherein said variable-output quantizer comprises an output transistor switch and a power supply regulator, and varies the power supply voltage of said output transistor switch by means of said power supply regulator. One of ordinary skill in the art would recognize that it is a design choice and/or obvious to include a variable attenuator and a variable quantizer, to provide higher flexibility in regulating the signal-to-noise ratio, and as a result, enhancing the system performance. Therefore, it would have been obvious to one of ordinary skill in the art to include a variable attenuator and a variable quantizer for the reason stated above. One of ordinary skill in the art would recognize that it is well known in the art that the variable-output quantizer employs a transistor switch and a power supply as it is evidenced by Marrs (claim 9 of Marrs) in order to obtain the variable-output quantizer. Therefore, it would have been obvious to one of ordinary skill in the art to obtain the variable-output quantizer using a transistor switch and a power supply for the reason stated above.

Allowable Subject Matter

Claims 4 and 6 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Mitzlaff (US 6,735,419); Rueger et al (US 7,298,308).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRESHTEH N. AGHDAM whose telephone number is (571)272-6037. The examiner can normally be reached on 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh Fan can be reached on 571-272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Freshteh N Aghdam/

Examiner, Art Unit 2611

/Chieh M Fan/

Supervisory Patent Examiner, Art Unit 2611